A critical appraisal of Effect of Exercise with a Pelvic Realignment Device on Low-Back and Pelvic Girdle Pain After Childbirth: A Randomized Control Study

By

Iman Lat, SPT

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Department of Physical Therapy

Angelo State University

Member, Texas Tech University System

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Abstract

This paper will explore the benefits and drawbacks of the use of pelvic realignment device and stabilization exercises in reducing low back and pelvic pain in postpartum women over a period of 13 weeks. This paper will explore the strength of the methods used by the experimenters, as well as the validity of the results. This paper will discuss the strengths and weaknesses of this study within the scope of the following clinical question: do stabilization exercises help reduce low back pain in postpartum women.

Key words

Stabilization exercises, low back pain, postpartum women, childbirth, pelvic realignment device.

Introduction

This paper explores the effects of pelvic stabilization exercises on reducing low back pain in women after childbirth. More than 30% of women experience low back pain after giving birth, which can negatively impact quality of life and ability to care for the infant. The importance of this appraisal is to determine if pelvic stabilization exercises can significantly reduce low back pain in postpartum women.

Methods

In order to find relevant studies pertaining to the effect of pelvic stabilization exercises on low back pain in postpartum women, I began searching the PMC and PubMed databases. I searched for studies using keywords such as stabilization exercises, low back pain, childbirth, postpartum, and women. I limited my search by only looking for studies that were randomized controlled trials. Randomized controlled trials help prevent any manipulation of results or selection bias, and allows for direct comparison of groups. Inclusion criteria included searching only for studies involving low back pain and postpartum women, because this appraisal is specifically focusing on interventions to reduce low back pain in postpartum women. I found a total of less than 50 relevant articles per database, and in total less than 100 articles. This may be due to research into interventions for improving low back pain in women after childbirth being fairly novel.

The article I chose for this critical appraisal was published in the Journal of Rehabilitation Medicine in 2018. The study was conducted in Hiroshima, Japan and all subjects were recruited from the Nakagawa Clinic. The principal researchers of this study are Asuka Sakamoto, MS; Hiroshi Nakagawa, MD; Hitoshi Nakagawa, MD; Kazuyoshi Gamada, PhD. I

chose this article because it is a randomized controlled trial related to exploring if pelvic stabilization exercises can improve low back pain in women after childbirth.

Results

Summary of the study

This study tests the effect stabilization exercises, along with a pelvic realignment device, have on low back and pelvic girdle pain in postpartum women. It has been found that 30% of women experience low back and pelvic girdle pain after childbirth, and this can negatively affect quality of life and normal function. After childbirth, pelvic stabilization exercises are prescribed to help reduce pain. This study is a randomized controlled trial with three groups (one control group and two experimental groups). The two experimental groups included a group performing stabilization exercises with a pelvic realignment device and a group that only performed stabilization exercises. 75 pregnant women were randomly assigned to one of these three groups. The researchers measured pain intensity and limitations in activities of daily living in the three month period following childbirth; they took these measurements 11 times in this period. The researchers used a Kruskal-Wallis test to statistically analyze the results by comparing the effects of exercise between the groups. This study involved a four week intervention period and a nine week follow up period for a total of 13 weeks. At 13 weeks after childbirth, it was found that while all three groups had significant reductions in pain, the experimental group with stabilization exercises and the pelvic realignment device had a significant reduction in pain and activity limitation, but the group with only stabilization exercises did not have a significant reduction in pain. Overall, there were not significant differences between the two experimental groups and the control group. However, it could be concluded that stabilization exercises with

the pelvic realignment device resulted in more improvement in pain both immediately and short-term.

Appraisal of the study introduction

The introduction for this article is comprehensive and provides enough background information in relation to the pathology, how daily activities are affected, and references other studies in regards to low back and pelvic pain after childbirth. The authors have relevant literature that they reference to throughout the article. Based on the introduction, the independent variables are stabilization exercises and pelvic realignment device, and the dependent variables are pelvic pain and low back pain. The introduction seems to be well written, it is concise and to the point and discusses the main points of what the authors are researching with this study.

While the authors could provide more background information in regards to current research in reducing low back and pelvic girdle pain in postpartum women, and the mechanics behind the pelvic stabilization device used in the study, they seem to get their point across. The keywords for this paper were for the most part addressed satisfactorily in the introduction, however they mentioned pelvic pain more than they mentioned low back pain. Most literature referenced in this study are from within the past 5 to 10 years, however there are some literatures that are more than 10 years in the past. There is some weak literature because while it is in regards to low back pain, it is not relevant to the population in this study which is postpartum women.

Appraisal of the study methods

The research design for this study is experimental, as it is a randomized controlled study. It is a prospective and longitudinal study. There are 3 groups employed in this study: a control group, an experimental group with only stabilization exercises, and a control group with

stabilization exercises and pelvic realignment device. This study has a between subjects design. The women in the study were all recruited from a single obstetrics and gynecology clinic in Japan, and all were healthy pregnant women between the ages of 20-40, had unmedicated vaginal delivery, and did not have previous history of pelvic pain. There was no difference between the groups at the start of the study. All groups were managed in the same way except for the experimental interventions, and interventions were described clearly, with enough detail. This study can be easily replicated in the future, and there are no limitations to replicating this study. The data collection process was described in sufficient detail, and can be replicated by other individuals in the future.The outcome measures and instruments are described in sufficient detail and were found to be reliable and valid.

Weakness of this study is that the authors do not specify if the subjects or clinicians are blinded. While 86 subjects were initially recruited, subject attrition did occur with 8 subjects due to medical complications, transfer to a different hospital after childbirth, and later declination to participate. The sample size is sufficient, however somewhat small.

Appraisal of the study results

The results are written in a clear and organized manner, the hypothesis has been addressed clearly, and the research question has been answered using statistical data. The authors report all the outcome measures they had initially presented in the methods. The tables and figures are presented clearly, accurately, and make sense. The confidence interval used was 95% confidence, the threshold of the p value that is considered to be statistically significant is above 0.5.

While the study itself was clinically meaningful, the results showed no significant differences between groups. The authors of this study did not describe any concept about

minimal clinically important differences before analyzing the data. However, they did mention the number of patients needed to treat in order for this study to be significant.

Appraisal of the study discussion

The authors clearly described the meaning of their results in their discussion, and tied their result findings to existing literature from the past 20 years from relevant and credible journals. The authors addressed the clinical significance and clinical application of this study for low back and pelvic pain in postpartum women.

The authors indicated that there was a lack of detailed information on compliance at home after day 5, and they did not use imaging or clinical physical examination for diagnosis, so the cause for the pain was unclear. Further study is suggested with imaging, a larger sample size, and different populations since this study is the first of its kind.

Discussion

The article concludes that while stabilization exercises with pelvic realignment device leads to immediate and short term improvement in low back and pelvic pain after childbirth, there is no significant difference between stabilization exercises without and with the device. The aim of this study was to find whether a pelvic realignment device in combination with stabilization exercises could improve outcomes for postpartum women with low back and pelvic pain.

Stabilization exercises in combination with pelvic realignment devices in the clinic is an innovative way to help reduce low back and pelvic pain in women after childbirth. Benefits of this intervention can result in improvement of posture, mobility, strength, and reduction in pain. However, if a patient has certain osteological deformities or other comorbidities, it may be a contraindication to this intervention. However, a thorough patient examination should be done

before applying this intervention, due to potential to significantly reduce low back and pelvic pain after childbirth.

I have confidence in the validity of the research of this experiment, because it is well-designed and easily replicated in a clinical setting. Although further research is needed to determine the benefits of this intervention across different populations, the interventions discussed are relatively safe and use proven methods in reducing low back pain and pelvic pain, such as pelvic stabilization exercises. A pelvic realignment device is also a good tool to use in order to help patients keep good alignment or correct bad alignment. In the future, as a physical therapist, I can anticipate safely and appropriately implementing a stabilization exercise intervention with pelvic realignment device.

In conclusion, the randomized controlled trial that this paper appraises is well written, and answers that stabilization exercises along with a pelvic realignment device can reduce acute and sub-acute low back pain and pelvic pain in postpartum women. This study can be easily replicated. The authors encourage further research into this intervention among different population and a larger sample size due to the novelty of research in low back pain and pelvic pain in women after childbirth.